VI. *An Account of a Book.* Lexicon Technicum: *Or, an Univerſal* Engliſh *Dictionary of Arts and Sciences, explaining not only the Terms of Art, but the Arts themſelves. In Folio. By* J. Harris, *M. A. and F. R. S.*

THE deſign of this Dictionary is different from that of moſt others; for here are explained not only the Terms which are uſed in every Art and Science, but likewiſe the Arts and Sciences themſelves; in moſt of which the Reader will find ſomething that is new, and all things deliver'd in a clear and regular method.

The Author hath been very full and particular in all the parts of the Mathematicks.

In *Geometry*, under the name of each Figure he demonſtrates its eſſential Properties, and ſhews its conſtruction and uſe.

Under ſuch words as *Parabola*, *Ellipſis*, *Hyperbola*, the Author is very large, and not only defines thoſe Figures, but demonſtrates their moſt remarkable and Primary Properties; as likewiſe thoſe of the *Conchoid*, *Cycloid*, *Logarithmick Line*, *Ciſſoid*, *Quadratrix*, and Spiral Lines; and is very full in the uſeful arts of Trigonometry, both Plain and Spherical, with their uſes and applications; in Spherical Geometry, or the Art of projecting the Sphere *in plano*, in Surveying, Dyalling, *&c.* in all which he has not ſo ſtrictly confin'd himſelf to other Authors, but that the Reader may meet with ſomething that is new.

Under *Algebra* and the Terms thereunto belonging (ſuch as Equation, Conſtruction, *&c.*) he hath given a clear and diſtinct account of the nature of that Science; giving all the Rules together with their Reaſons and Demonſtrations, the Reſolution of Affected Equations, the Conſtructions of Cubicks and Biquadraticks, with the Inveſtigation of Mr *Baker's* Central Rule, *&c.*

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Under the word *Aſſymptote* he hath ſeveral conſiderations concerning Aſſymptotical Curves, where he ſhows that Curves which admit of no Rectilineal Aſſymptot may notwithſtanding be aſſymptomatical to one another, with ſeveral other conſiderations of the like nature. Nor has he been leſs full in what we call the new Methods; under the word *Fluxions* he has given us the firſt Principles of that Science, *viz.* the nature and *Algorithm* of them; and their uſe and application he has every where given under proper heads, and by theſe is ſhown an univerſal Method of drawing of *Tangents* to all Curves, of determining the Points of *Inflexion* and *Retrogreſſion:* of reſolving queſtions *de Maximis & Minimis*; of finding the Centres of *Gravity*, Oſcillation, *&c.*

All the parts of *Arithmetick* are here explained, with its application to *Anatociſm*, *compound Intereſt*, and *Annuities*, together with the doctrine of *Surds*, the Method of Extracting *Roots* by *converging Series*, Logarithms, and Fractions, both Vulgar, Decimal, and Sexageſimal.

He hath likewiſe given the Deſcription and Uſe of both the *Celeſtial* and *Terreſtrial Globe*, the different Hypotheſes of Aſtronomers, with an explication of the Terms belonging to each; the *Parallaxes*, *Magnitudes*, *Motions*, and *Diſtances* of the *Planets*; with ſeveral curious Obſervations relating to the Heavenly Bodies, Mr *Newton*'s Theory of the Moon, with a large account of *Comets*, from the ſame Author; the Nature and Uſe of Opticks, Catoptricks, Dioptricks, with ſeveral Methods for finding the *Foci* of Spherical Glaſſes, the doctrine of the *Acceleration* of Heavy Bodies; the compoſition of Motion, Geography, Muſick, *&c.*

In *Anatomy* he has been very particular, giving a large account of all the Parts of a Humane Body, both Internal anExternal, with the deſcriptions of the Muſcles and Bones, in a fair Plate, and under ſuch general words as *Blood*, *Circulation*, *Heart*, *Ear*, *Eye*, *Arteries*, *Veins*, *Bile*, *Lympha*, *Chylification*, &c. he hath always conſulted the beſt Authors.

In

In *Architecture* likewiſe he hath in a Plate given an explanation of the Five Orders of Pillars, together with a full and clear account of the Nature and Rules of that Art, which is to be met with under the ſeveral terms thereunto belonging.

In *Fortification*, beſides an explication of the whole Art under proper terms from the beſt Authors in that kind, he hath alſo a new Plate with a deſcription annexed, wherein all the parts of a Fortify'd place are clearly ſeen at one view.

He hath deſcribed the ſeveral parts of a *Ship*, both as in the Dock when Building, and when Rigged and under ſail at Sea: Wherein he has been very accurate and particular; for beſides the helps of the beſt Dictionaries in that kind, as well as *Draughts*, *Sections* and *Models*, he has often gone aboard himſelf to get a more ready and ſure knowledge in this matter.

He hath given the *Laws* of *Motion*, both with reſpect to uniform and accelerated Motions, he hath determin'd the Laws of the ſhock of Bodies perfectly *hard*, and thoſe that are *Elaſtick*, &c.

In *Gunnery* he hath given demonſtrative rules and methods for ſhooting in Great Guns and Mortars, from the Theorems of the Learn'd Captain *Halley*, and from Mr *Anderſon*'s Tables.

He hath given us alſo the Doctrine of *Mechanicks* and *Staticks*, hath determin'd the Laws of Projectiles, and is very large in *Hydroſtaticks*, giving an account of the nature and properties of Fluids, determining them both Experimentally and Mathematically, and has annexed a very accurate Table of the Specifick gravities of different Bodies, from Mr *Boyle*, Mr *Collins*, and his own Experiments.

The Grand *Phænomena* of *Nature* he hath explain'd from the beſt Authors, as the Law of Gravitation from Mr *Newton*, the Theory of the Tides from Captain *Halley* on his Principles, *&c.* And under ſuch general Terms as *Magnetiſm*, *Light*, *Colours*, *Elaſticity*, *Solidity*, *Diviſibility*, *Volatility*, *Firmneſs*, *Heat*, *Cold*, ***Wind***, &c. you have what is diſcovered concerning the nature and properties of thoſe qualities from Experiments and Obſervation.

The *Phænomena* of the *Rainbow* or *Iris*, he hath accounted for from the Learned and Ingenious Captain *Halley*.

He hath given an account of *Snow* from Dr *Grew*, and one of *Ice* from the *French*.

As to *Sound* he hath collected all he cou'd meet with, but withal hints, that that quality is not ſufficiently underſtood, and wiſhes it were a little better conſidered.

He is very full in his Explication of the Phænomena and Properties of the *Air* and *Atmoſphere*, as its *Gravity*, *Spring* or *Elaſticity*, ty, *&c.* and likewiſe in its deſcriptions of the uſe of ſuch Inſtruments as have been invented, to enable us to judge of them, as the Barometer, Thermometer, Hygrometer, *&c.* moſt of which is from the Honourable Mr *Boyle* and the Philoſophical Tranſ.

He hath given an account of *Springs* and *Fountains* from Capt. *Halley* and Dr *Woodward.*

In the Art of *Botany* he hath been very large, giving an account of the ſeveral kinds of *ſubalternate* Species of Plants, and their Specifick differences, in which he chiefly follows our excellent Botaniſt Mr *Ray*, but hath conſulted Mr *Tournefort*, alſo *Moriſon* and other Writers on this ſubject.

He hath explain'd the method of calculating of *Automata* or *Clock* and *Watch-work* from Mr *Derham*, as alſo the terms of Art uſed in Painting and Sculpture.

He has given a Table of Foſſils from the Learn'd Dr *Woodward*; a Scheme of Metals and Stones from Bp *Wilkins* real Character; and a Table of Animals from Mr *Ray*.

He has alſo given from Dr *Woodward* a very large account of Vegetation confirm'd by very accurate Experiments and Obſervations, from all which that matter is ſet in a better light than it has ever yet appeared in.

In *Chymiſtry* he hath been very large and particular, explaining the *Chymical Principles*, *Veſſels* and degrees of *Fire*, and hath omitted no proceſs or Operation of uſe, that he could either meet with in Books, procure from his Friends, or had an opportunity of trying himſelf.

In *Heraldry* he hath given the entire Art of Blazoning and Marſhalling a Coat of Arms; and explained all the *Ordinarys*, *Charges*, *Bearings*, &c. by Figures, but hath ſaid nothing of Families (any further than that ſuch a Coat belongs to ſuch a Name) explaining only the Art and its terms.

In *Logick*, *Metaphyſicks*, *Ethicks*, *Grammar*, *Rhetorick*, *&c.* he is deſignedly very ſhort; giving uſually the bare explication of the Words and terms of thoſe Arts.

In *Hiſtory* and *Chronology* he hath given what properly belongs to them as Arts, as an account of the *Civil* computation of time, the original and reduction one to another of the ſeveral Æra's, Epocha's, Periods, *&c.*

As to the *Law*, he has conſulted the beſt Authors and Dictionaries in that kind he could meet with, and hath from thence tranſcribed abridgedly all that ſeem'd neceſſary, and then had it examin'd and corrected by a Perſon of known Ability in that Profeſſion.

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